**IN THE UNITED STATES DISTRICT COURT**
**FOR THE SOUTHERN DISTRICT OF TEXAS**
**HOUSTON DIVISION**

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| GRYPHON OILFIELD SOLUTIONS, LLC, Plaintiff, | § | |
| v. | § | CIVIL ACTION NO. H-17-3220 |
| STAGE COMPLETIONS INC., *et al.*, Defendants. | § | |

## MEMORANDUM AND ORDER ON CLAIM CONSTRUCTION

This patent case is before the Court for construction of the disputed claim terms in United States Patent No. 9,611,727 ("the '727 Patent"), entitled "Apparatus and Method for Fracturing a Well" (the "Patent-in-Suit"). Plaintiff Gryphon Oilfield Solutions, LLC ("Gryphon") is the current owner of the Patent-in-Suit. Gryphon alleges that Defendants Stage Completions Inc. and Stage Completions (USA) Corp. (collectively, "Stage") are infringing claims 1, 2, and 7 of the '727 Patent.

The Court conducted a hearing pursuant to *Markman v. Westview Instruments, Inc.*, 517 U.S. 370 (1996) ("*Markman* hearing"), on October 30, 2018. Based on the evidence before the Court, the arguments presented by counsel, and the governing legal authorities, the Court issues this Memorandum and Order construing those disputed claim terms that require construction.

## I. BACKGROUND

Gryphon is the current owner by assignment of the '727 Patent. The '727 Patent covers a system and method for fracturing hydrocarbon formations utilizing sliding frac sleeves. Hydraulic fracturing, or fracking, is a process used in the oil and gas industry to increase the well production rate and the ultimate recovery of oil or gas from the well. *See* Gryphon's Written Tutorial [Doc. # 102], p. 2. The fracking process involves fracturing hydrocarbon formations by pumping fluids downhole and into the formation at high pressure. *See id.* This creates cracks, or fractures, in the formation to allow access to the oil and gas. *See id.*

Unlike earlier devices that used graduated ball seats that could receive a ball dropped downhole to create a seal in the wellbore, the device covered by the '727 Patent "is actuated via a key profile on the sliding sleeve that corresponds to a profile on a dart that is inserted and moved downhole with pressurized fracturing fluid." *See id.* at 7. The device described in the '727 Patent uses darts with dart profiles extending radially outward that mate with key profiles on the piston of the frac sleeve. *See* Gryphon's Motion for Preliminary Injunction [Doc. # 10], p. 4 (citing '727 Patent, 6:61-64, 7:40-8:2). A dart travels downhole until its dart profile reaches the matching key profile, whereupon it latches into the respective piston. *See* Stage Written Tutorial [Doc. # 98], p. 7. The dart cup forms a seal within the valve, creating

hydraulic pressure to move the piston to the open position, thereby allowing fracturing fluid to be released into the hydrocarbon formation to allow fracking. *See id.*

Gryphon filed this lawsuit, alleging that Defendants' Bowhead II system infringes Claims 1, 2, and 7 of the '727 Patent. Stage denies infringement.[1]

Claim 1 recites:

> 1. A method for fracturing a well in a formation, the method comprising the steps of:
>
> a) providing an apparatus having at least two valves, each valve having a key profile disposed thereon, wherein the key profile of each of the at least two valves is different from the key profile of the other of the at least two valves and a piston that is slidable between an open position and a closed position;
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> b) placing the apparatus in a cased string disposed in the well, the apparatus located near a production zone in the formation;
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> c) placing a dart into the casing string, the dart having a dart profile disposed thereon, wherein the dart profile matches the key profile on only one of the at least two valves; and
>
> d) injecting pressurized fracturing fluid into the casing string wherein the fracturing fluid moves the dart through the casing string into the apparatus until it reaches one of the at least two valves with the key profile disposed on an interior sidewall of a tubular piston disposed within the apparatus, to place a downward force on the piston to move the piston from the closed position to an the open position wherein the fracturing fluid can pass through at least one port of the apparatus to fracture the formation.

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[1] Defendants also challenge the validity of the '727 Patent.

’727 Patent, Claim 1, at 9:20-45.

Claim 2 of the ’727 Patent recites:

> 2. The method of claim 1, wherein the dart further comprises at least one dart cup uphole of the dart profile, configured to seal off communication through the piston when the dart profile has engaged the corresponding key profile.

’727 Patent, Claim 2, at 9:46-10:3.

Claim 7 of the ’727 Patent recites:

> 7. A system of valves and at least one dart for use downhole in a well, the system comprising:
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> at least two valves, each valve comprising:
>
> a) a tubular valve body comprising upper and lower ends defining communication therebetween, the valve body further comprising at least one port extending through a sidewall thereof nearer the upper end;
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> b) a tubular piston slidably disposed in the valve body and configured to provide communication therethrough, the piston closing the at least one port in a closed position, the piston opening the at least one port in an open position;
>
> c) a key profile disposed on an interior sidewall of the piston and comprising at least two grooves and a locking shoulder, the key profile for moving the piston from the closed position to the open position when a downward force is placed on the piston; and
>
> d) a tubular end cap disposed on the lower end of the valve body, the end cap configured to stop the piston when the piston moves from the closed position to the open position;

where the key profiles of the at least two valves have the locking shoulders in different locations relative to the two grooves within their key profile, and

the at least one dart comprising a longitudinal shaft comprising upper and lower ends, the lower end comprising a dart profile, the dart profile configured to engage grooves and locking shoulder of a matching key profile, the upper end comprising at least one dart cup configured to seal off communication through the piston when the dart profile has engage the corresponding key profile,

where the location of the two grooves and locking shoulder in the dart profile is configured to specifically bypass unmatching key profiles and specifically engage the key profile of a targeted valve.

'727 Patent, Claim 7, at 10:12-46.

Prior to the *Markman* hearing, Gryphon and Stage each filed a Written Tutorial [Docs. # 102 and # 98]. The parties filed a Joint Claim Construction Chart [Doc. # 101] and a Final Claim Construction Chart [Doc. # 118]. Gryphon filed its Claim Construction Brief [Doc. # 112], Stage filed its Responsive Claim Construction Brief [Doc. # 115], and Gryphon filed its Reply Brief [Doc. # 116]. The Court conducted a *Markman* hearing, after which the parties submitted Supplemental Briefs [Docs. # 134 and # 133]. With leave of Court, Gryphon filed a second supplemental brief [Doc. # 137]. The Court now issues its claim construction ruling.

## II. GENERAL LEGAL STANDARDS FOR CLAIM CONSTRUCTION

"It is a bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude." *Aventis Pharm., Inc.*

*v. Amino Chems. Ltd.*, 715 F.3d 1363, 1373 (Fed. Cir. 2013) (quoting *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (*en banc*)). The patent claims in issue must be construed as a matter of law to determine their scope and meaning. *See, e.g.*, *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 390 (1996), *aff'g*, 52 F.3d 967, 976 (Fed. Cir.) (*en banc*); *Verizon Servs. Corp. v. Vonage Holdings Corp.*, 503 F.3d 1295, 1317 (Fed. Cir. 2007).

"There is a heavy presumption that claim terms are to be given their ordinary and customary meaning." *Aventis*, 715 F.3d at 1373 (citing *Phillips*, 415 F.3d at 1312-13; *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). Therefore, Courts must "look to the words of the claims themselves . . . to define the scope of the patented invention." *Id.* (citations omitted); *see also Summit 6, LLC v. Samsung Elec. Co., Ltd.*, 802 F.3d 1283, 1290 (Fed. Cir. 2015). The "ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art[2] in question at the time of the invention, *i.e.*, as of the effective filing date of the patent application." *Phillips*, 415 F.3d at 1313; *see also*

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[2] Gryphon has presented evidence, and Stage does not appear to contest, that the relevant "person of ordinary skill in the art" in this case "would have a bachelor's degree in petroleum or mechanical engineering, or an equivalent degree, and at least three years' experience in drilling and completions of oil wells, including education and experience in fracture stimulations. The years of experience necessary may increase or decrease depending upon levels of education above or below a bachelor's degree." *See* Declaration of Dr. Gary R. Wooley, Exh. 2 to Gryphon's Claim Construction Brief, ¶ 20.

*ICU Med., Inc. v. Alaris Med. Sys., Inc.*, 558 F.3d 1368, 1374 (Fed. Cir. 2009). This "person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification." *Phillips*, 415 F.3d at 1313; *ICU*, 558 F.3d at 1374.

Intrinsic evidence is the primary resource for claim construction. *See Power-One, Inc. v. Artesyn Techs., Inc.*, 599 F.3d 1343, 1348 (Fed. Cir. 2010) (citing *Phillips*, 415 F.3d at 1312). For certain claim terms, "the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words." *Phillips*, 415 F.3d at 1314. For other claim terms, however, the meaning of the claim language may be less apparent. To construe those terms, the Court considers "those sources available to the public that show what a person of skill in the art would have understood disputed claim language to mean . . . [including] the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art." *Id.*

The claims "provide substantial guidance as to the meaning of particular claim terms." *Id.* The Court may consider the context in which the terms are used and the differences among the claims. *See id.* "Because claim terms are normally used consistently throughout the patent, the usage of a term in one claim can often illuminate the meaning of the same term in other claims." *Id.* Because the claims "are part of a fully integrated written instrument," the Court may also consider the specification and the patent's prosecution history. *Id.* at 1315, 1317. When the claims use separate terms, "each term is presumed to have a distinct meaning." *Primos, Inc. v. Hunter's Specialties, Inc.*, 451 F.3d 841, 847 (Fed. Cir. 2006).

## III. CONSTRUCTION OF DISPUTED CLAIM TERMS

### A. "Dart"

The parties agree that the claim term "dart" is a device that is dropped or pumped downhole to activate downhole equipment. Gryphon is in agreement that the claim term properly includes the limitation of an "elongated body." *See* Gryphon Supp. Brief, p. 8. Stage prefers "elongated shaft" instead of "elongated body," and argues that the claim term should be construed to include the additional limitation of a "guide nose." *See* Stage Supp. Brief, p. 2.

The Court agrees with the parties that the term "dart" must include a limitation that distinguishes the shape of the dart in the '727 Patent from a ball, and notes the

parties' agreement with use of the term "elongated" to describe the dart's shape. The Court, therefore, construes the claim term "dart" in the '727 Patent to mean "a device having an elongated shape that is dropped or pumped downhole to activate downhole equipment." The "elongated shape" limitations adequately distinguishes the "dart" in the '727 Patent from a ball, which would not be a "dart" for purposes of the Patent-in-Suit.

The Court does not, however, adopt Stage's proposal for the additional limitation of a "guide nose." The term "guide nose" lacks clarity.[3]

**B. "Key Profile" and "Dart Profile"**

The method covered by Claim 1 and the system covered by Claim 7 of the '727 Patent include at least two valves, each valve having a "key profile."[4] The method covered by Claim 1 and the system covered by Claim 7 of the '727 Patent also include

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[3] It appears from the evidence in the record that a person of ordinary skill in the art would understand a dart to have at least one end that is smaller than the body of the dart. *See* '727 Patent, Figs. 1 and 13; *see also* U.S. Patent No. 2011/0240311 A1 ("Robison") (Exh. 19 to Gryphon's Opening Claim Construction Brief), Fig. 2D. This does not demonstrate, however, that this smaller end would constitute a "guide nose" or that the smaller end is a limitation in the '727 Patent.

[4] *See* Claim 1 ("A method for fracturing a well in a formation, the method comprising the steps of (a) providing an apparatus having at least two valves, each valve having a key profile disposed thereon"); Claim 7 ("A system . . . comprising: at least two valves . . . where the key profiles of the at least two valves . . ..").

a "dart profile" on the dart.[5] When the dart moves downhole, its dart profile matches with only one corresponding key profile.

Stage's proposed construction of these terms is focused on the one-to-one matching relationship between the dart profile and the corresponding key profile. *See* Stage Responsive Claim Construction Brief [Doc. # 115], pp. 8-10. Although Stage is correct that the '727 Patent requires elsewhere that the dart profile match only one key profile,[6] that limitation is not part of the construction of the terms "dart profile" and "key profile."

Gryphon's proposed construction focuses, instead, on the shape of the profiles. *See* Gryphon Claim Construction Brief [Doc. # 112], p. 8. Gryphon's proposed limitation requiring that the key profile and the dart profile have a "particular shape or pattern," however, is overly broad and too general to construe the terms adequately. The '727 Patent describes the "key profile" as having at least two "grooves" into which the dart profile is "configured to engage." *See* '727 Patent, 10:37-39.

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5 *See* Claim 1 ("placing a dart into the casing string, the dart having a dart profile disposed thereon"); Claim 7 ("the at least one dart comprising a longitudinal shaft comprising upper and lower ends, the lower end comprising a dart profile").

6 *See* '727 Patent, Claim 1, ¶ (c); Claim 7, second unnumbered paragraph after limitation (d) ("the at least one dart comprising a longitudinal shaft comprising upper and lower ends, the lower end comprising a dart profile, the dart profile configured to engage grooves and locking shoulder of a matching key profile, the upper end comprising at least one dart cup configured to seal off communication through the piston when the dart profile has engage the corresponding key profile").

Therefore, the Court construes the term "key profile" to mean "a specific pattern of indentations on the interior surface of the valve" and construes the term "dart profile" to mean "a specific pattern of protrusions on the exterior surface of the dart."

### C. "Wherein the Dart Profile Matches the Key Profile on Only One of the at Least Two Valves"

Gryphon agrees with a proposed construction of this claim term to mean "wherein the dart profile interlocks with a complementary key profile within only one targeted valve." *See* Gryphon Supp. Brief, p. 2. Stage agrees generally, but proposes substituting "matching" for "complementary" and removing the word "targeted" from the construction. *See* Stage Supp. Brief, p. 3.

The Court construes this claim term to mean "wherein the dart profile interlocks with a single, complementary key profile within only one corresponding valve." The phrase "single, complementary key profile" adequately conveys the concept that the dart profile matches a key profile, without using the same word that is used in the claim term being construed. The Court rejects Gryphon's proposed use of the word "targeted" because it could improperly impose an intent limitation that is not supported by the intrinsic evidence.

### D. "The Fracturing Fluid Moves the Dart Through the Casing String"

The parties' dispute focuses on the construction of "fracturing fluid" as used in Claim 1 of the '727 Patent. Gryphon asserts that the term is one that is readily

understood by a person of ordinary skill in the art. *See* Gryphon Claim Construction Brief, p. 19. Before and at the *Markman* hearing, Stage argued that the term "fracturing fluid" is understood in the industry, and should be construed by the Court, to require that the fluid be either an acid or a fluid that carries a proppant material such as sand or microscopic beads. *See* Stage Responsive Claim Construction Brief, p. 17. Stage suggested during the *Markman* hearing that this claim term should be construed to require that the fracturing fluid be at a certain pressure. This limitation was not included in Stage's proposed construction of this claim term. The Court also rejects this suggestion because the pressure requirement is contained elsewhere in Claim 1 at 9:35 ("injecting pressurized fracturing fluid").

The Court has carefully considered the parties' pre-hearing briefing and arguments during the *Markman* hearing. The Court concludes that the term does not require special construction and is given its ordinary and customary meaning as understood by a person of ordinary skill in the art.

### E. "Dart Cup . . . Configured to Seal Off Communication Through the Piston When the Dart Profile Has Engaged the Corresponding Key Profile"

***"Dart Cup"/Cup-Shaped.–*** The parties dispute whether the "dart cup" must be cup-shaped. Gryphon proposes that the "dart cup" be construed simply as "an

exterior seal." Stage proposes that the claim term be construed to mean "a seal with depressed center and raised sealing lips."

A "dart cup" is understood in the oil and gas industry to be a "cup seal." *See* Declaration of David J. Speller, Exh. A to Stage's Responsive Claim Construction Brief [Doc. # 115-1], p. 17. A cup seal is named for its shape. *See id.* at 16.

Gryphon's proposed construction improperly removes the word "cup" from the claim term. Gryphon's expert, Dr. Gary R. Wooley, opines that "regardless of the shape, the dart cup must seal against the piston." *See* Wooley Declaration, Exh. 2 to Gryphon Claim Construction Brief, p. 39. The '727 Patent states that dart cups "can be circular in configuration, when viewed from the top, or of any other configuration such that darts cups **44** can substantially contact the interior surface of piston **20** when pressurized fracturing fluid is injected into the well." *See* '747 Patent, 5:50-54. The '727 Patent states further that in certain embodiments, the dart cups "can comprise any other shape that are configured to function equivalently to seal against piston **20**." *See* '747 Patent, 8:11-13.

Gryphon argues correctly that the patentee is entitled to act as its own lexicographer to provide a definition of a term different from its usual and customary meaning. The standard for lexicography, however, is exacting. *See Luminara Worldwide, LLC v. Liown Elec. Co. Ltd.*, 814 F.3d 1343, 1353 (Fed. Cir. 2016);

*Barkan Wireless Access Tech., L.P. v. Cellco P'ship*, __ F. App'x __, 2018 WL 4151281, *2 (Fed. Cir. Aug. 29, 2018). To act as its own lexicographer, the patentee must "clearly set forth a definition of the disputed claim term" and "clearly express an intent to redefine the term." *See id.* (quoting *Thorner v. Sony Comput. Entm't Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012)). The language in the '727 Patent fails to satisfy this exacting standard. The language on which Gryphon relies does not "clearly set forth" a substitute definition for "dart cup" or "cup seal" that eliminates the limitation of a cup shape. Moreover, the language does not "clearly express an intent to redefine the term." Instead, the language states generally that the dart cups can have a circular shape, specifically when viewed from the top, and in certain embodiments can have any other shape. This does not clearly express an intent to alter the ordinary and customary meaning of "dart cup" or "cup seal" as cup-shaped, and does not clearly set forth a new definition for the claim term. As a result, Gryphon's reliance on lexicography is unavailing and the ordinary and customary meaning of "dart cup" as understood by one of ordinary skill in the art is unaltered.

***Seals In Only One Direction.–*** The parties also dispute whether the seal created by the dart cup is designed to contain high pressure in one direction but not in the other. Gryphon has presented Dr. Wooley's opinion that the language of the '727 Patent does not require that the dart cup contain high pressure in one direction

only. *See* Wooley Declaration, p. 39. Stage has presented persuasive evidence, however, that a dart cup, or cup seal, is designed to contain high pressure in one direction but not in the other. *See* Speller Declaration, p. 17. A person of ordinary skill in the art would understand that a high pressure seal is created when pressure is applied upstream of the dart cup because the sides of the cup will flare out to create the high pressure seal. *See id.* at 18. When pressure is applied in the other direction, *i.e.*, from below the cup, the cup will collapse and the high pressure seal cannot form. *See id.* Therefore, the Court agrees that the dart cup is configured to seal off high pressure in one direction but not in the other.

***Court's Construction of Claim Term.–*** Based on the foregoing, the Court construes the claim term "dart cup . . . configured to seal off communication through the piston when the dart profile has engaged the corresponding key profile" to mean "a cup-shaped seal designed to contain high pressure in one direction but not in the other and that blocks fluid flow through the piston when the dart profile engages the key profile."

### F. "Where the Key Profiles of the at Least Two Valves Have the Locking Shoulders in Different Locations Relative to the Two Grooves Within their Key Profile"

Gryphon proposes that this claim term be construed to mean "the key profiles of the at least two valves differ from one another in that the distances[7] between the locking shoulder and one of the end points of the two grooves changes between the key profiles of the valves." *See* Joint Claim Construction Chart [Doc. # 118], p. 7. Stage's current proposed construction is that "in each key profile of the at least two valves, the locking shoulder is in a different location and moves in relation to the two grooves; the locking shoulder is separate from the two grooves in at least one of the two key profiles." *See* Stage's Supplemental Claim Construction Brief, p. 8 n.7. The parties' disagreement focuses on whether the locking shoulder of one or both key profiles can be located in a groove.

During prosecution of what issued as the '727 Patent, the patent examiner rejected proposed claim 1 (which did not issue) and claim 14 (which issued as Claim 7 of the '727 Patent). The patent examiner explained that the proposed limitation that the key profile had "at least two grooves and a locking shoulder" was present in prior

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[7] The Court disagrees with Gryphon's proposed use of the term "distances" as unsupported by the intrinsic evidence. The claim term refers to the different "location" of the locking shoulder relative to the at least two grooves, and does not require any particular relative distances.

art, specifically that Robison[8] also included "at least two grooves and a locking shoulder." *See* Office Action Summary, Exh. 20 to Gryphon's Claim Construction Brief, p. 18. With reference to claim 14 (which issued as Claim 7), the language was amended to the existing language which reads "where the key profiles of the at least two valves have the locking shoulders in different locations relative to the two grooves within their key profile." With reference to proposed claim 1 (which did not issue), the language was amended to read that the key profile comprised "at least two grooves and a locking shoulder spaced apart from the two grooves." *See* Amendment & Response, Exh. 8 to Gryphon's Claim Construction Brief, p. 3, p. 5 (referencing Figs. 15A through 15D). The differing proposed amendment language strongly suggests that the "spaced apart from the two grooves" language proposed for claim 1 was not considered applicable to claim 14 (which issued as Claim 7). *See Applied Med. Resources Corp. v. U.S. Surgical Corp.*, 448 F.3d 1324, 1333 n.3 (Fed. Cir. 2006). Figs. 15A through 15C, cited in the Amendment & Response and included in the '727 Patent as issued, show the locking shoulder **56** in one of the grooves of the key profile **55**.

The '727 Patent and its prosecution history indicate that the locking shoulder of one key profile of the at least two valves can be located within one of the key

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[8] U.S. Patent No. 2011/0240311 A1.

profile's two grooves. Assuming for illustrative purposes that there are two valves, each with a key profile containing two grooves, there is nothing in the patent or its prosecution that precludes the locking shoulder of one or both of the key profiles from being located in one of the two grooves, provided that the locking shoulders in the two key profiles are in different locations relative to the two grooves in each key profile. For example, the locking shoulder in one key profile could be located in one of the two grooves ("Groove A") and the locking shoulder in the second key profile could be located in the other of the two grooves ("Groove B").

Therefore, the Court construes the claim term "where the key profiles of the at least two valves have the locking shoulders in different locations relative to the two grooves within their key profile" to mean "the key profiles of the at least two valves have the locking shoulders in different locations relative to the two grooves within the valves' key profiles; the locking shoulder can be located within one of the two grooves."

### G. "Configured to Specifically Bypass Unmatching Key Profiles and Specifically Engage the Key Profile of a Targeted Valve"

Gryphon agrees with a proposed construction of this claim term to mean "configured to specifically bypass unmatching key profiles and specifically engage the corresponding key profile of the targeted valve." *See* Gryphon Supp. Brief, pp. 4-5. Stage proposes that this claim term be construed to mean "configured to engage

only one valve having the matching key profile and bypass unmatching key profiles." *See* Stage Supp. Brief, p. 4. Although the two proposals are very similar, the Court construes the claim term as agreed by Gryphon. The construction relies primarily on the ordinary and customary meaning of the language in the claim term, while adding the word "corresponding" to convey that the intrinsic evidence requires one dart profile that matches or corresponds to one key profile.

## IV. CONCLUSION

The Court has considered the intrinsic evidence in the record, as well as limited extrinsic evidence as cited herein. The Court also has considered the parties' oral arguments and explanations during the *Markman* hearing, as well as the supplemental briefing, all of which the Court found very helpful and informative. Based on this consideration of the evidence and the parties' arguments, as well as the application of governing claim construction principles, the Court construes the disputed terms in the Patent-in-Suit as set forth above and in the chart below.

| **Claim Term** | **Court's Construction** |
|---|---|
| Dart | A device having an elongated shape that is dropped or pumped downhole to activate downhole equipment |
| Key Profile | A specific pattern of indentations on the interior surface of the valve |

| | |
|---|---|
| Dart Profile | A specific pattern of protrusions on the exterior surface of the dart |
| Wherein the Dart Profile Matches the Key Profile on Only One of the at Least Two Valves | Wherein the dart profile interlocks with a single, complementary key profile within only one corresponding valve |
| The Fracturing Fluid Moves the Dart Through the Casing String | Ordinary and customary meaning as understood by a person of ordinary skill in the art |
| Dart Cup . . . Configured to Seal Off Communication Through the Piston When the Dart Profile Has Engaged the Corresponding Key Profile | A cup-shaped seal designed to contain high pressure in one direction but not in the other and that blocks fluid flow through the piston when the dart profile engages the key profile |
| Where the Key Profiles of the at Least Two Valves Have the Locking Shoulders in Different Locations Relative to the Two Grooves Within their Key Profile | The key profiles of the at least two valves have the locking shoulders in different locations relative to the two grooves within the valves' key profiles; the locking shoulder can be located within one of the two grooves |
| Configured to Specifically Bypass Unmatching Key Profiles and Specifically Engage the Key Profile of a Targeted Valve | Configured to specifically bypass unmatching key profiles and to specifically engage the corresponding key profile of the targeted valve |

It is **SO ORDERED**.

SIGNED at Houston, Texas, this **27th** day of **November, 2018**.

NANCY F. ATLAS
SENIOR UNITED STATES DISTRICT JUDGE